Empirical Studies on the links between IT, Operational Effectiveness and Firm Performance

Submitted by:
Suvendu Naskar
MIS Group
IIM Calcutta

Thesis Advisory Committee:
Prof. Preetam Basu (Jt. Chair.)
Prof. Soumyakanti Chakraborty (Jt. Chair.)
Prof. Palash Deb
Prof. Anup Kumar Sen

Abstract

Over the last few decades, there has been phenomenal advancement in Information Technology and allied services. Digitization in the form of Social, Mobility, Analytics, and Cloud (SMAC) is poised to establish a new paradigm of IT-enabled business processes. Not far behind is the adoption of Big Data and the Internet of Things. These changes allow firms to create competency by providing faster and efficient information processing capability, thereby easing the information processing burden on managers. Firms in search of new customers are extending operations to non-host territories and thereby maintaining top

the focus of supply chain management is shifting from merely managing material to managing all the three essential flows, namely information, finance, and material together. Hence, aspects like supply chain finance, trade credit management, or supply chain agility are gaining importance. However, research investigating the effect of IT/ICT components (both traditional and emerging) on these evolving supply chain performance indicators are lacking. In this thesis, we venture to bridge this research gap. We grounded this thesis on the premise that under current circumstances, conventional (i.e., infrastructure, labor) and emerging (e.g., analytics, IoT) IT artifacts play a decisive role in managing less explored operational performance indicators (e.g., trade credit management, supply chain agility).

This dissertation is based on four independent and fairly exhaustive studies where we explored the links between different IT/IS artifacts, operational effectiveness, and firm performance. We explore IT infrastructure, IT labor, Analytics, and IoT based on smart RFID as four key IS artifacts. Likewise, on the operational effectiveness dimension, we explored the indicators such as supply chain finance, trade credit, and supply chain agility as a proxy of supply chain management operational effectiveness indicators. We examine how the above-mentioned operational indicators impact overall firm performance and the role of different IS/ICT artifacts (i.e., IT infrastructure, IT labor, Analytics) influencing the same. The second and third chapters are based on secondary data, whereby and fourth chapter is based on primary data. The fifth chapter is based on publicly available research publications.

exploring specific usage of IoT using RFID or otherwise and the potential impacts in supply chain processes and firm performance are minuscule. We observe using a sub-process level heat-map matrix; currently, research is focused on piecemeal applications ignoring the full capability